

Poland's A2 Motorway

Unlike other infrastructure sectors, where the provision of services is monopolistic in nature or the demand risks are mitigated by contracts with a known, credit-worthy off-taker, toll roads and their operators increasingly will be exposed to users that are sensitive to time-value tradeoffs and underlying economic variables.

—Standard & Poor's¹

Wojciech Gebicki (pronounced Voy'-check Geh-beet'-ski), vice president—finance, and chief financial officer of Autostrada Wielkopolska, S.A. (AWSA), sat in his Warsaw office preparing for a meeting he had scheduled for the following day with bankers from Credit Lyonnais and Commerzbank. AWSA, a consortium of Polish and Western European firms, had won an exclusive concession to build and operate a major segment of the proposed A2 Motorway, the first private toll road in Poland. Gebicki had been hired by AWSA in October 1999, to secure a €242 million commercial bank loan as part of the project's €934 million total cost. The financing plan, which had undergone numerous changes since AWSA won the concession in 1997, reflected input from AWSA, its legal advisors Mike Webster and Piotr Swiecicki (Pio'-ter Shven-cheet'-ski) from Baker & McKenzie, the shareholder Finance Committee led by Anfrid Lenned of NCC (a large Swedish construction company), and the company's financial advisor Stephen Uhlig from Deutsche Bank, as well as representatives from the Polish Ministries of Transport and Finance.

Four months earlier, in February 2000, AWSA had chosen Credit Lyonnais and Commerzbank as joint lead arrangers for the bank financing. Although the banks had submitted a firm underwriting proposal, their commitment was subject to due diligence, including a review of the underlying traffic forecasts and financial projections. In requesting this meeting, the bankers had expressed concerns with the traffic forecasts, and indicated the deal might require an additional €60 million to €90 million of equity to cover shortfalls in certain downside scenarios. Gebicki worried that any change

Dean's Research Fellow Michael Kane and Professor Benjamin C. Esty prepared this case. HBS cases are developed solely as the basis for class discussion. Cases are not intended to serve as endorsements, sources of primary data, or illustrations of effective or ineffective management.

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¹ Forsgren, K., et al., "The Toll Road Sector: Smooth Conditions Overall But Watch for Caution Flags," *Standard & Poor's Infrastructure Finance*, October 1999, p. 149.

at this point would, at a minimum, entail difficult negotiations with the shareholders and could, in the extreme, derail the entire concession. If the financing were not closed by July 29, less than six weeks away, the concession would expire. Before his recent conversation with the bankers, he had been convinced that the project structure was solid and that the deal team had effectively assessed, mitigated, and allocated all of the major risks. But now, he knew they would have to revisit many of the key assumptions, particularly those with regard to the revenue and traffic forecasts.

POLAND AND THE TOLL MOTORWAYS ACT

Poland provided a natural land bridge between Eastern and Western Europe. With a land area of 128,000 square miles and a population of some 39 million people, it was the largest of the former Soviet Union satellite countries in Central Europe (see Exhibit 16-1). Under the Polish Communist Party, there had been state ownership of most businesses, centralized planning, price controls and subsidies, and a welfare state. Although Poland achieved some economic growth during the 1980s, it experienced recurring shortages of consumer goods, labor unrest, hyperinflation, and government deficits.

With Gorbachev's *glasnost* came the collapse of the Communist Party's control of Poland. The Solidarity movement won the elections of June 1989 and ushered in an era of economic and political reform. Finance Minister Leszek Balcerowicz implemented a liberalization program known as the "Big Bang."² Despite the harsh impact this "shock therapy" had on the country, Poland maintained political stability. In the subsequent years, GDP grew, inflation subsided, and the currency (the zloty³ or PLN) stabilized (see Exhibits 16-2, 16-3a, and 16-3b). By early 2000, it appeared that Poland had succeeded in building political democracy and a free market economy, though it still had a long way to go to achieve economic parity with most Western European countries. Its GDP per capita of \$7,270 still lagged behind that of other Central European countries like Hungary (\$9,020) and the Czech Republic (\$11,300), and remained far behind that of European Union (EU) members such as Greece (\$16,800), Spain (\$19,300), and Germany (\$24,800). As further links to Western Europe, Poland joined NATO in 1999 and was a leading candidate to join the EU in the first expansion wave planned for 2004. Admission to the EU was a high priority for the Polish government and all of the major political parties.

Besides reforming the economy, the government also recognized the need to upgrade and expand the country's transportation infrastructure. Toward that end, the government approved the construction of a 2,600-km⁴ tolled motorway system in September 1993, which consisted of four main routes, two running east-west (the A2 and A4 motorways in Exhibit 16-1) and two running north-south (A1 and A3 in Exhibit 16-1). Compared to Poland's 264 km of existing motorways, 130 km of which was built before World War II, the program represented an ambitious target.⁵ The government hoped

² Kennedy and Sandler, "Shock Therapy in Eastern Europe: The Polish and Czechoslovak Economic Reforms," Harvard Business School Case No. 797-068 (Boston: Harvard Business School Publishing, 1997, Rev. 3/13/99), p. 7.

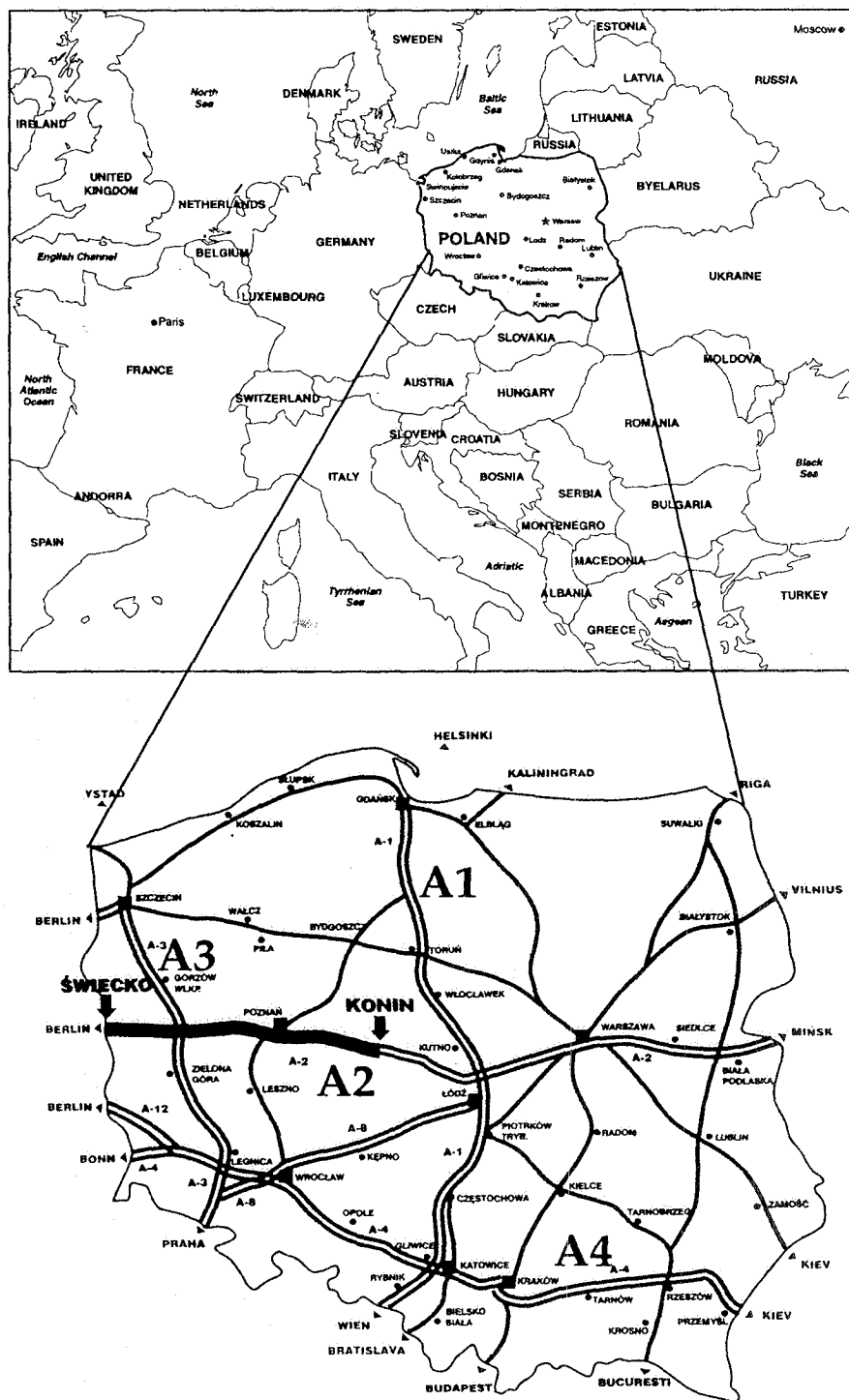
³ Since January 1, 1999, the zloty had been pegged to the U.S. dollar (45%) and the Euro (55%). Since March 25, 1999, the rate of monthly devaluation had been 0.3%, and the zloty had been allowed to float within a band of $\pm 15\%$ around the central parties. (Source: International Monetary Fund Website: <http://dsbb.imf.org/country/pol>)

⁴ 100 kilometers or km equals 62.2 miles.

⁵ International Road Federation, *World Road Statistics 1999 Edition*, p. 26.

EXHIBIT 16-1

THE POLISH MOTORWAY PROGRAM



Source: Casewriter, Deutsche Bank AG, A2 Motorway—POLAND, Information Memorandum, November 1999.

EXHIBIT 16-2

POLISH ECONOMIC DATA 1991-1999

	Units	1991	1992	1993	1994	1995	1996	1997	1998	1999
Population	million	38.2	38.4	38.5	38.5	38.6	38.6	38.6	38.7	38.7
Macroeconomic Data										
Gross domestic product (real)	million PLN	52,121	53,490	55,422	58,409	62,477	66,245	70,778	74,200	77,250
Change in real GDP	% change	-7.0	2.6	3.8	5.2	7.0	6.0	6.8	4.8	4.1
Nominal GDP per capita	\$US	\$4,240	\$4,450	\$4,715	\$5,050	\$5,520	\$5,960	\$6,480	\$6,880	\$7,270
Unemployment rate	percent	n/a	13.6	15.0	16.5	15.2	14.3	11.5	10.0	12.3
Total exports (fob)	million \$US	14,913	13,187	14,219	17,272	22,893	24,440	25,751	28,229	27,407
Total imports (cif)	million \$US	15,766	16,142	18,779	21,596	29,073	37,137	42,308	47,054	45,911
Foreign direct investment	million \$US	291	678	1,715	1,875	3,659	4,498	4,908	6,365	n/a
Government fiscal balance	million zloty	n/a	n/a	n/a	(4,812)	(5,762)	(7,826)	(6,162)	(5,561)	n/a
Rates and Inflation										
Exchange rate (average)	zloty/\$US	1.06	1.36	1.81	2.27	2.43	2.70	3.28	3.48	3.97
Bank lending rate	% p.a.	54.6	39.0	35.3	32.8	33.5	26.1	25.0	24.5	17.0
Consumer prices	% change	60.4	44.3	37.6	29.5	21.6	18.5	13.2	8.6	9.8
Country Credit Ratings										
S&P Long-term Foreign Currency Debt Rating		Not rated	Not rated	Not rated	Not rated	BB	BBB-	BBB-	BBB-	BBB
<i>Institutional Investor</i> Country Credit Rating ^a		24.4	24.7	28.6	33.1	37.6	44.0	50.2	56.7	57.5
ICRG Composite Risk Rating ^b		61.0	70.5	73.5	76.0	78.0	80.0	79.3	82.0	74.8

^a The *Institutional Investor* country credit rating is based on a semiannual survey of 75 to 100 international bankers who were asked to grade each country on a scale of 1 (very high chance of default) to 100 (least chance of default), and is available at www.iimagazine.com.

^b The International Country Risk Guide (ICRG) provides a rating composed of 22 variables in three risk categories: political (100 points), financial (50 points), and economic (50 points). ICRG provides ratings for 140 countries on a monthly basis where higher numbers indicate lower risk. The composite risk rating equals the sum of the individual ratings divided by two: 0 to 49.5 is considered very high risk; 80 to 100 is considered very low risk.

Sources: The Economist Intelligence Unit, *EIU Country Profile and EIU Country Report*, May 2001, p. 7; International Monetary Fund, *International Financial Statistics Yearbook 2000*, pp. 806-809; *Standard & Poor's Credit Week*, June 11, 1997, p. 25.

EXHIBIT 16-3A

CURRENCY EXCHANGE RATES

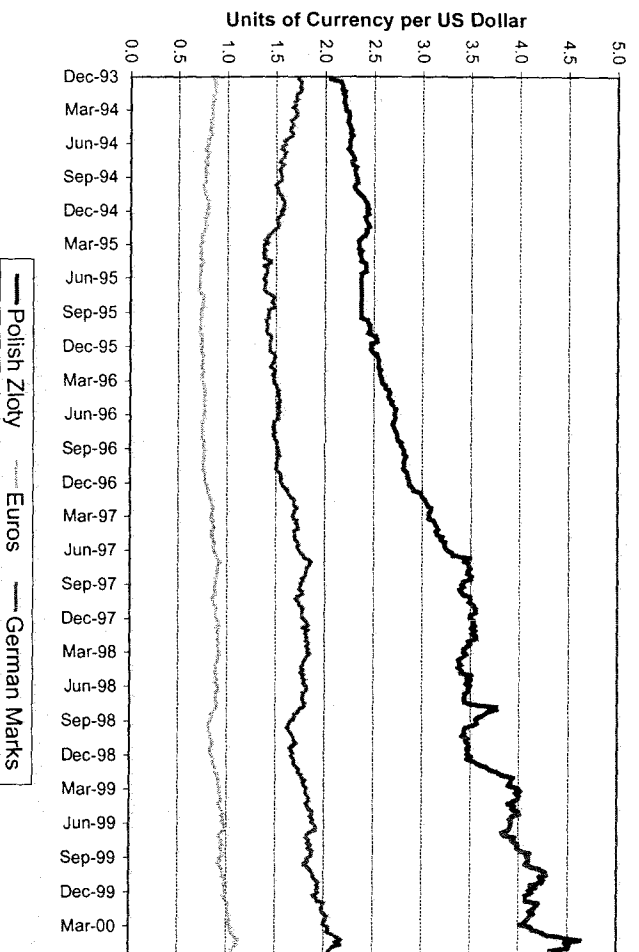
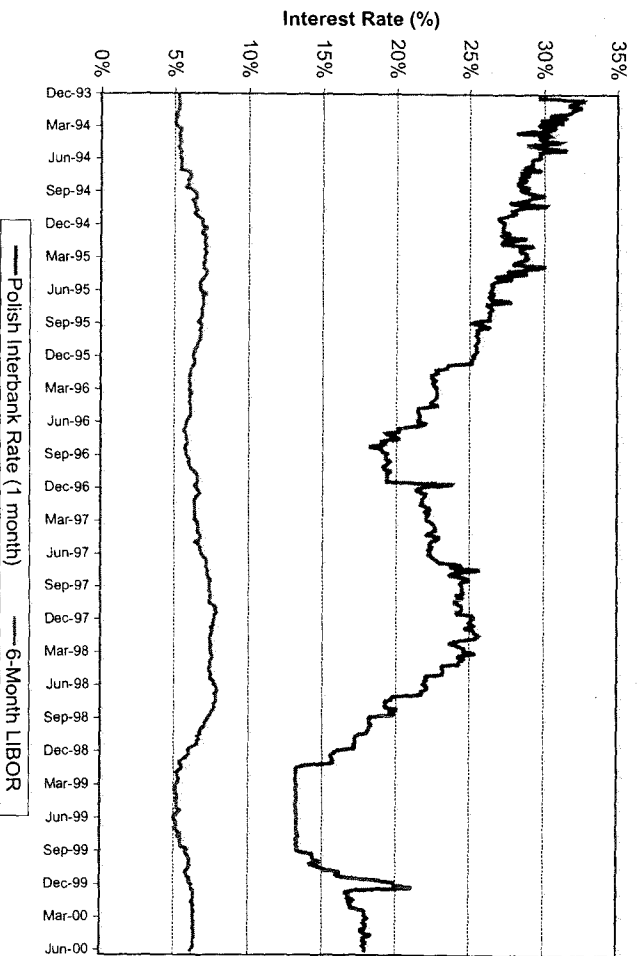


EXHIBIT 16-3B

INTEREST RATES



Source: Created from Datastream data.

that private enterprise would provide a substantial fraction of the estimated U.S. \$10 billion cost under the "build-operate-transfer" (BOT) model used for infrastructure projects around the world.⁶ Under the BOT model, the government retained ownership of the motorway while the private companies that financed construction, known as concessionaires, had the right to operate the motorway and receive profits for a defined period of time. When a concession ended, the concessionaire would transfer operations and control back to the government.

The Toll Motorways Act of 1994 and followup legislation provided the legal framework for the program. It authorized the government to grant concessions on a competitive tender basis for the construction and operation of tolled motorways. In addition, the Act authorized the government to guarantee financing for up to 50% of the total cost of construction, create a new government agency to oversee the program, and take land for the motorways by eminent domain.

THE A2 MOTORWAY PROJECT

The government selected the A2 Motorway as the first concession. When complete, it would be part of the Paris–Berlin–Warsaw–Moscow transit corridor and would eventually become part of the €30 billion Trans-European Network (TENs), a modern transportation system linking EU member countries.⁷ The motorway would run from the German border at Swiecko, though the cities of Poznan and Warsaw, to Belarus. Like much of Poland, the route was predominantly farmland with rolling hills and plains, terrain that presented few obstacles to highway construction.

Selection of the A2 to lead off the motorway program was consistent with the fact that Germany and Russia were two of Poland's largest trading partners. Germany alone accounted for almost one-third of Poland's exports and 25% of its imports. A vice president of the European Investment Bank (EIB), a multilateral lending agency with a strong interest in backing Central European infrastructure development, said: "Today, trucks moving between Berlin and Warsaw have an average speed of 20 km per hour; it is not possible to really integrate Poland with the EU in such a situation."⁸

AWSA decided that the A2 would be an "open" toll road, which meant that toll-booths would be located along the main route. While they could have chosen other structures, notably a "closed" toll system with tollbooths at entrance and exit ramps or a "shadow" toll system with periodic toll payments from the government rather than drivers, they chose to use an open system because it was cheaper to build and operate, and minimized government involvement.

THE CONCESSION AGREEMENT

In 1995, the government began a competitive tender process for the western portion of the A2. It awarded a 30-year BOT concession to AWSA in September 1997, for a fee of €10 million—later, the government extended the concession to 40 years to compensate AWSA for taking away a 100-km segment at the eastern end of the concession. Over the next two years, AWSA and the government negotiated several versions of the concession agreement. Gebicki commented:

⁶ Baker & McKenzie, *The Polish Toll Motorway Project*, 2d ed. (Warsaw, 1998), p. 5.

⁷ European Investment Bank, "Development of the Trans-European Transport Networks: the Way Forward," February 2001.

⁸ "A2 Motorway Finally Approved," *Polish News Bulletin of the British and American Embassies*, February 4, 2000.

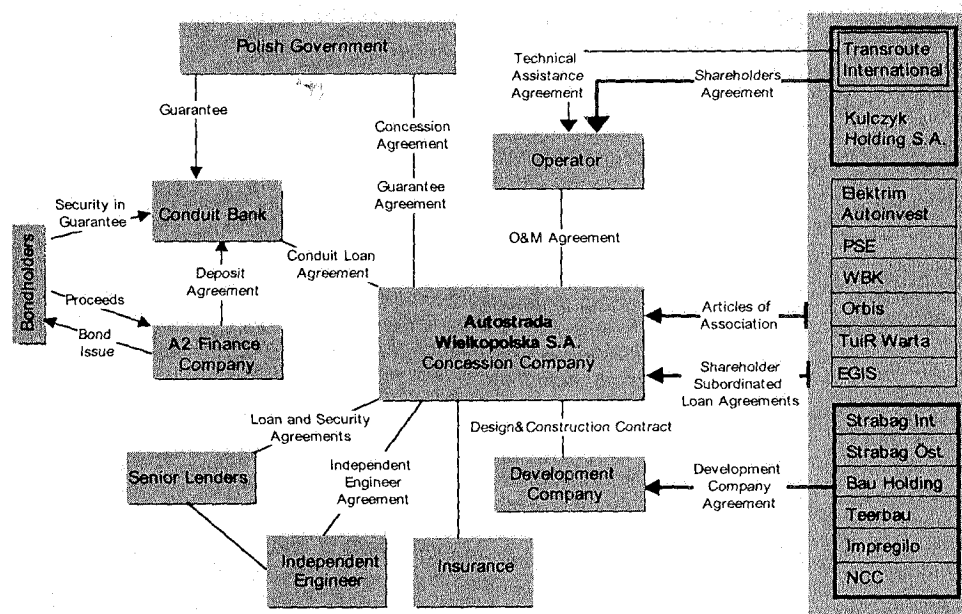
The challenge of this project was its size, setting (Poland), and lack of precedents. None of the principal parties, including the government, had any significant experience in structuring projects of this size. It was a complicated learning process on all fronts as we struggled to structure a deal that met international standards for financing and construction.

After two years of negotiations, they signed Annex No. 2 to the concession agreement on October 28, 1999. On the occasion, Poland's prime minister Jerzy Buzek said, "We shall drive to the European Union down this road."⁹

AWSA itself was a special-purpose consortium incorporated to bid on the A2 concession.¹⁰ Polish firms with diversified commercial interests, such as hotels and tourism (Orbis), finance (Wielkopolski Bank Kredytowy), power transmission (PSE—owned by the Polish government), insurance (Warta), and private equity investors (Kulczyk Holding), owned 77% of the company. Western European firms, engaged primarily in heavy construction, owned the other 23% (Exhibits 16-4 and 16-5 detail the project structure and ownership, respectively.)

EXHIBIT 16-4

ORIGINAL PROJECT STRUCTURE AS PROPOSED BY AWSA



Source: Deutsche Bank AG, A2 Motorway—POLAND, Information Memorandum, November 1999.

⁹ "Long and Winding Road to Europe," Polish News Bulletin of the British and American Embassies, November 2, 2000, reporting on articles in the November 2, 2000 issues of *Gazeta Wyborcza*, p. 16, and *Prawo i Gospodarka*, p. 1.

¹⁰ The name *Autostrada Wielkopolska* meant "Greater Poland Motorway" and referred to the province containing Poznań, the provincial capital. The rest of the acronym, SA, referred to the fact that AWSA was a joint stock company.

EXHIBIT 16-5**OWNERSHIP OF AUTOSTRADA WIELKOPOLSKA S.A.
AS OF NOVEMBER 1999**

	Ownership (percent)	1998 (million Euros, consolidated)			
		Country	Assets	Revenues	NPAT ^d
Polish Shareholders					
PSE S.A. (Polish Power Co.)	19.77%		€1,490.0	€3,304.7	€8.3
Kulczyk Holding S.A.	18.83		84.6	22.3	21.5
Elektrim Autoinvest S.A. ^{a,b}	10.27		1,054.9	750.0	12.9
Wielkopolski Bank Kredytowy	9.98		2,047.8	386.8	45.3
ORBIS S.A.	9.22		276.1	176.5	17.2
TUiR Warta S.A. Insurance	4.75		478.6	251.2	10.8
Others (5 companies)	4.18				
Total	76.99%				
International Shareholders					
Strabag International	5.52%	Germany	1,263.4	2,198.6	(28.8)
Impregilo SpA ^b	4.75	Italy	2,780.3	973.0	18.6
NCC AB	4.75	Sweden	n/a	3,597.0	57.2
Teerbau GmbH ^b	4.75	Germany	319.2	701.5	2.2
Strabag Oesterreich ^c	2.00	Austria	133.0	1,030.0	19.8
Bau Holding AG	1.00	Austria	1,071.3	1,246.1	12.0
EGIS	0.24	France	430.6	412.4	(8.2)
Total	23.01%				

^a Data are for the Elektrim Group consolidated including Elektrim Autoinvest S.A. and Elektrim S.A.

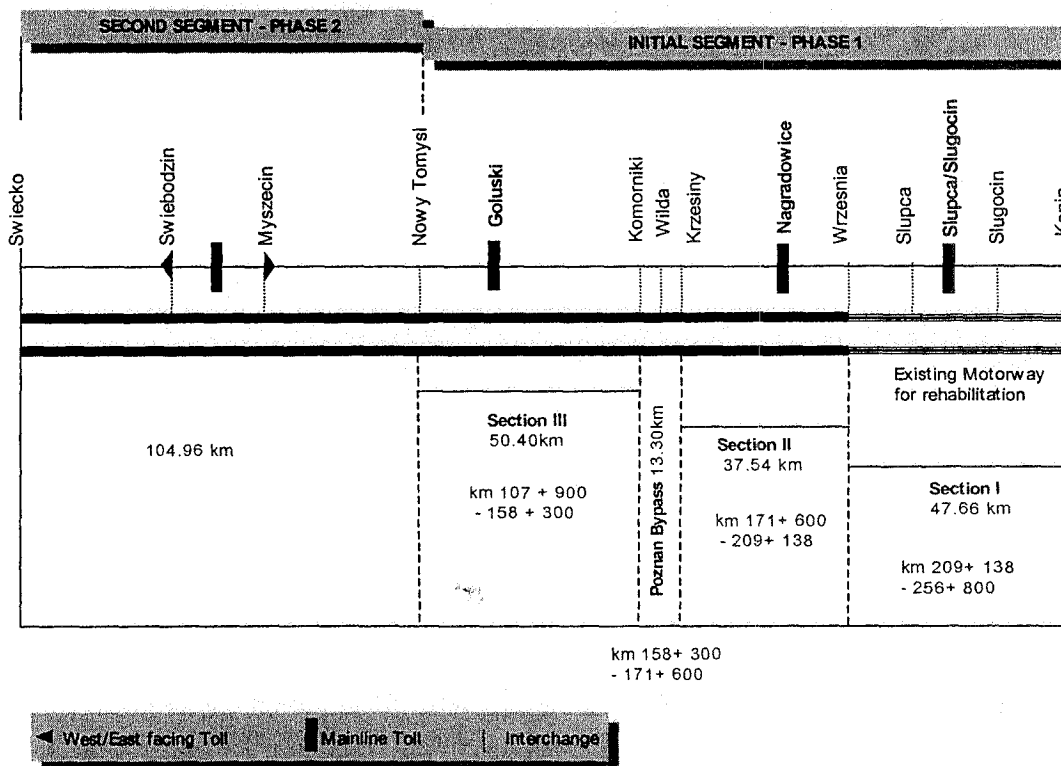
^b Later sold shares and left the project company.

^c Data is for 1997. Bau Holding acquired a controlling majority interest in the Strabag Group companies in 1998.

^d NPAT = net profit after tax.

Source: Deutsche Bank AG, A2 Motorway—POLAND, Information Memorandum, November 1999.

The concession authorized AWSA to design, finance, build, and operate the western third of the A2 Motorway, a distance of 254 km. The concession application specified a phased plan of construction beginning at Konin and proceeding westward to Swiecko. Phase 1 (Konin to Nowy Tomysl) contained three roughly equal sections with sequential completion deadlines (see Exhibit 16-6). AWSA was obligated to finish Phase 1 within 6.25 years after financial close and had until December 2007 to finalize financing for Phase 2 (Nowy Tomysl to Swiecko) or the government could reassign that concession to another firm. The government was responsible for acquiring title to the land, by eminent domain if necessary, and transferring it to AWSA under a long-term lease within six weeks of financial close. Delivery of the lease, which carried an annual fee of PLN 5.5 million, was a condition precedent for release of construction funds. Although the government needed rights to more than 5,000 properties, it was confident it could deliver on time. It was AWSA's responsibility (via the General Contractor) to

EXHIBIT 16-6**THE A2 CONCESSION**

Source: Deutsche Bank AG, A2 Motorway—POLAND, Information Memorandum, November 1999.

get the local permits required for construction and operation, but the government agreed to support these efforts and to compensate AWSA in the event there were delays due to government authorities.

The government had the right to terminate the concession for "cause" or for defined forms of nonperformance, such as failure to commence or complete work by certain deadlines, or failure to make required payments to the government. If the government did terminate for cause, it would assume ownership and operation of the concession. All the financing would remain in place, and toll revenues would remain dedicated to debt service. The government also had the right to terminate in the public interest, without cause. In this case, it was obligated to compensate AWSA for the cost of fully retiring AWSA's debt obligations and for the net present value of the cash flow distributions that would have been made to shareholders had the concession not been canceled.¹¹

The A2 concession provided several benefits to the government in addition to the annual lease payment. The most important benefits were employment during con-

¹¹ Deutsche Bank AG, A2 Motorway—POLAND, Information Memorandum, November 1999, p. 32.

struction, higher levels of commerce both within Poland and with its neighbors, value added taxes (VAT) applicable to the commercial tolls, and, possibly, a share in project cash flows. The government was entitled to receive 20% of distributable cash flow once the shareholders had received a cumulative real return of 10% or more on their invested capital, and 50% once they had received a return of 15% or more.

PHASE 1: DESIGN, CONSTRUCTION, AND FINANCING

AWSA expected to sign a fixed-price design and construction contract for Phase 1 with a new special-purpose joint-venture company (the Development Company or DC) owned by several AWSA shareholders with extensive construction experience. The owners, who jointly and severally guaranteed the DC's performance under the contract, included Strabag—one of the largest construction companies in Germany and Austria; NCC—a Swedish construction company; Impregilo—an Italian construction company; and Teerbau—a German civil engineering firm.

The design and construction costs for Phase 1 had been fixed at €16 million and €622 million, respectively. (Exhibit 16-7 shows Sources and Uses of Funds.) The euro-denominated contracts were "turnkey," meaning that the contractor was responsible for ensuring that AWSA could begin commercial operation on a specified date. Only in the event AWSA ordered changes to the design could the DC require additional compensation above the fixed price. The contracts provided for a 15% advance payment, with the remainder to be paid in monthly installments. An independent engineer retained

EXHIBIT 16-7

SOURCES AND USES OF FUNDS

Funding Requirement	Euro (mils)	PLN (mils)	Percent of Total	Funding Sources	Euro (mils)	PLN (mils)	Percent of Total
Construction costs	€622	2,804	66.5%	Equity	€108	461	10.9%
Design costs	16	69	1.6	Shareholder loan A	73	327	7.8
Owners' and other costs	63	269	6.4	Shareholder loan B	53	239	5.7
Pre-operating costs	3	13	0.3	Shareholder funds	235	1,027	24.4
Concession costs	10	37	0.9				
Project Costs	713	3,192	75.7	Senior debt	242	1,100	26.1
				Bonds (3 tranches)	266	1,196	28.4
Loan fees	9	38	0.9	Bond interest, F/X losses	135	630	14.9
Interest rolled-up	182	852	20.2	Debt funds	643	2,926	69.4
Capital reserve account	11	52	1.2				
O&M during construction	15	73	1.7	Total Capital	878	3,953	93.8
Taxes	2	8	0.2				
Working capital	(2)	(4)	(0.1)	Early toll revenues	34	164	3.9
Cash	4	5	0.1	Interest on cash balance	22	100	2.4
Total Requirement	934	4,217	100.0	Total Sources	934	4,217	100.0

Source: Deutsche Bank AG, A2 Motorway—POLAND, Information Memorandum, November 1999.

by AWSA, but reporting to the government and the senior lenders, would monitor construction and certify completion prior to each monthly disbursement.

Phase 1 construction would begin in Konin with the reconstruction of the old national Route 2 and had a scheduled opening date of July 2002. The second section involved new construction of a road running parallel to national Route 2 and extending to a bypass around the city of Poznan. It was scheduled to open in the middle of 2003. Construction of the Poznan Bypass, a toll-free road, was the government's responsibility. The third and final section, also new construction running parallel to national Route 2, would continue westward from the Poznan Bypass to Nowy Tomysl and would open in late 2005. Gebicki explained the construction plan this way:

Although the staged approach extended the construction period, it was critical to the design. By staging construction, we maximized early revenue capture, which reduced the amount of external finance we needed. In addition, we expected that early road usage would produce hard data that would demonstrate the credibility of our traffic projections. With hard numbers on actual usage under tolled conditions, we would be in a much better position to negotiate the financing for Phase 2.

Besides the guarantee from its shareholders, the DC's performance was backed by usual performance bonds in favor of AWSA covering the 15% advance payment, performance under the contract up to €31 million, and work defects. A latent defects bond covered 5% of the contract price during construction, which was then reduced to 2.5% at completion of each section for the next for three years. The DC also agreed to pay AWSA liquidated damages for each day of delay beyond the specified completion date. Maximum damages were set at 5% of the contract price for each segment, an amount equal to roughly one year's projected toll revenues. If AWSA reached the maximum damages, it had the right to terminate the contract and replace the Development Company.

If, on the other hand, a *force majeure* event or government action caused a delay, then an insurance policy or the government (acting as an insurer of last resort for risks that could not be insured commercially), respectively, would compensate AWSA subject to a maximum annual loss of €650,000. The government also agreed to compensate AWSA for delays or increased costs caused by the discovery of archaeological or hazardous materials. Two independent consulting firms had already assessed the A2's environmental impact and concluded that it would meet Polish environmental standards, standards that some argued were stricter than World Bank standards.¹²

Phase 1 Operations

A new company, the Operating Company (OC), would operate and maintain the motorway under a 10-year renewable contract. Owned by three AWSA shareholders, the OC agreed to manage and maintain the motorway in exchange for a fixed annual fee paid in Polish zloty. The fee could be adjusted to reflect traffic growth and Polish inflation. Although this contract covered routine maintenance, AWSA remained responsible for heavy maintenance such as resurfacings.¹³ The first resurfacing, scheduled for sometime between 2011 and 2015 depending on use, would cost approximately €43 million. One of the largest shareholders, Transroute, was part of the EGIS Group, a firm that managed toll roads in France, Australia, Hungary, the United Kingdom, and the United States.

¹² Ibid., p. 61.

¹³ Ibid., p. 38.

Motorway revenue would come primarily from tolls, though AWSA would also receive a small amount of revenue from selling subconcessions to operate service areas (e.g., petrol stations, roadside restaurants, and eventually hotels). Toll revenue would depend on many factors, including the strength of the regional economies, international and local trade patterns, and alternative transportation routes. Over the past six years, independent consultants had produced three traffic studies: one for the government in 1994 prior to the concession tender process, one for AWSA in 1996 as it prepared to bid for the concession, and a third done by Wilbur Smith & Associates (WSA) in 1997, as part of AWSA's effort to finance Phase 1. The WSA study, which was updated in 1999, contained both traffic and revenue forecasts, and formed the basis for AWSA's financial projections.

Because the A2 Motorway was the first toll road in Poland, WSA had to rely on surveys of more than 50,000 motorists in 14 locations for data. Based on the surveys, WSA generated assumptions regarding types of vehicles, travel destinations, motorists' value of time, vehicle operating costs, capacity of alternative routes, growth in vehicle ownership, and other macroeconomic variables, and used them as inputs to a computer model that simulated driver behavior. Like the previous traffic consultants, WSA assumed that value of time, which was a function of Polish gross domestic product (GDP), would be the primary determinant of road use and drivers' willingness to pay tolls. WSA assumed that real per capita GDP would grow at 5% p.a. through 2002, decline to 4% p.a. through 2010, and then remain at 3% p.a. for the rest of the concession. Gebicki believed these assumptions were defensible given the high average growth rate recorded in Poland over the previous 10 years. Moreover, traffic growth on the existing Route 2 had grown at 6% annually over the last five years.

Using the model, WSA forecast that daily traffic would increase from 7,600 vehicles per day when the first section of Phase 1 opened in 2002 (approximately 50% of the 12,000 to 18,000 vehicles per day currently using national Route 2) to an average of 20,000 vehicles per day on each of the three sections by 2022 (see Exhibits 16-6 and 16-8). Whereas WSA assumed that the A2 would capture approximately 50% of the traffic, a ratings agency analyst noted that "Experience from successful toll roads that compete for traffic with toll-free roads suggests that viable market share ranges from 10% to 20% of a service area's total traffic volume."¹⁴ An analyst from Standard & Poor's reiterated the concern: "newly tolled facilities . . . often face traffic levels as much as 50% below initial forecasts."¹⁵ Fully aware of these concerns, Gebicki responded:

In our view, the original government study was a little too optimistic; our 1996 study was more or less correct; and we think the recent Wilbur Smith analysis is probably too conservative. The reason why I think the Wilbur Smith study is too conservative is because they, like the consultants before them, cut the revenue projections contained in the previous studies by as much as 50%. In fact, Wilbur Smith assumed a lower value of driver time, lower perceived vehicle operating costs, and higher speeds on alternative routes. The result was a 16% decline in revenue in 2002 and a 50% decline in 2022.¹⁶

The concession agreement contained commitments by the government designed to generate satisfactory traffic volume. For example, the government agreed to complete the Poznan bypass and compensate AWSA for completion delays. The government also

¹⁴ Fitch IBCA, Duff & Phelps, *Public Finance: Challenges of Start-Up Toll Roads*, June 9, 1999, p. 3.

¹⁵ Forsgren, "The Toll Road Sector," pp. 148-9.

¹⁶ The last part of this quotation comes from: "A2: Take two," *Project Finance*, December 2000, p. 21.

EXHIBIT 16-8
PROJECTED DAILY TRAFFIC AND TOLL RATES (NOMINAL CASH FLOWS IN POLISH ZLOTY)

	July-December, 2002			July-December, 2005			July-December, 2007			July-December, 2012		
	Average Daily Traffic	Toll per Vehicle	Semi- Annual Cash Flow (millions)	Average Daily Traffic	Toll per Vehicle	Semi- Annual Cash Flow (millions)	Average Daily Traffic	Toll per Vehicle	Semi- Annual Cash Flow (millions)	Average Daily Traffic	Toll per Vehicle	Semi- Annual Cash Flow (millions)
Type of Vehicle												
Passenger	3,400	9.48	3,539	14,200	12.53	32,560	15,800	15.04	43,487	20,600	20.80	78,412
Commercial 1	1,680	14.22	2,623	6,080	20.14	22,406	6,730	23.97	29,521	8,540	34.32	53,636
Commercial 2	710	21.33	1,663	2,590	30.25	14,338	2,660	35.91	17,479	3,090	51.48	29,110
Commercial 3	1,810	33.18	6,594	6,530	46.99	56,150	7,210	55.93	73,796	8,970	80.08	131,452
Total	7,600		14,419	29,400		125,454	32,400		164,283	41,200		292,610
Operating, Maintenance, and Other Costs			8,000			29,000			34,000			42,000
Operating Profit			6,419			96,454			130,283			250,610
Decrease/(Increase) in Net Working Capital			0			22,000			0			0
Taxes			0			0			0			0
Cash Flow Available for Debt Service			6,419			118,454			130,283			250,610
Senior Debt Payments												
Interest			0			40,000			36,000			6,000
Principal			0			39,000			42,000			149,000
Total			0			79,000			78,000			155,000

Source: Casewriter estimates based on Deutsche Bank Information Memorandum (November 1999) and Wilbur Smith Associates analysis.

agreed not to build or improve any competing road, not to impose tolls on any feeder roads, and to maintain the feeder roads. These commitments were backed by specific compensation provisions for losses suffered by AWSA.

With regard to toll levels, the concession agreement gave AWSA the right to set tolls in zloty, but limited both the initial and life-of-concession maximum tolls by class of vehicle. AWSA had the right to reset the actual tolls every six months, and there was a provision to adjust the maximum tolls to account for changes in Polish inflation and exchange rates. AWSA followed WSA's advice in setting the initial tolls at about 85% of the theoretical revenue-maximizing levels for each modeled period.

Although the forecasted toll revenues reflected a great deal of data and sophisticated computer analysis by experienced professionals, some level of traffic risk was unavoidable. In fact, there were examples, such as Hungary's M1/M15 toll road, where the projections were off considerably. M1 was a 42-km motorway extending from Budapest to the Austrian border on the route to Vienna. Completed in January 1996 at a cost of \$265 million,¹⁷ the motorway never generated the forecasted traffic volumes, in part because the operator set the initial toll rate at 1,000 Hungarian *forint* or U.S.\$5.88 (a rate that would be equivalent on a per mile basis to a \$50 toll for the 220-mile Massachusetts Turnpike in 1999).¹⁸ Reported one correspondent: "Hungarians, socked in the wallet by a sinking economy, stayed away in droves. In its first year of operation, traffic on the M1 ran about 35% below original projections."¹⁹ Among the other causes were Hungarian economic and currency weakness, customs delays at the Austrian border, and a good secondary road parallel to the M1.²⁰ Consequences included near bankruptcy of the operator, debt rescheduling, possible nationalization of the motorway by the government, and a lawsuit that led to a reduction in tolls.²¹ Learning from this experience, AWSA set the initial tolls at approximately 10 zloty (US\$2.50) per 50 km.

Insurance Arrangements

Acting with the advice of its insurance advisor Willis (formerly Willis Corroon), AWSA arranged for commercial insurance coverage as required by the concession agreement. During construction, there was all-risk coverage for property damage up to the full design and construction cost (€667 million), declining to U.S.\$100 million per event post-completion. Covered risks included broadly defined *force majeure* events such as explosions, epidemics, contamination, floods, war, revolution, and riots. Insurance for lost profits due to delay in completion was set at 30 days' projected gross revenues. After completion, business interruption insurance would cover revenue losses for up to 12 months. Finally, third-party liability insurance was U.S. \$50 million throughout the concession.

¹⁷ "Hungarian Toll Road to Austrian Border Opens," *The Wall Street Journal*, January 5, 1996, p. B9B.

¹⁸ *The Wall Street Journal Europe*, February 24, 1997, p. B9B.

¹⁹ D. Michaels, "Rough Driving Ahead: Hungary's Setback Bodes Ill for Toll Roads," *The Wall Street Journal Europe*, February 24, 1997, p. 18.

²⁰ "Global Toll-Roads, For Whom the Tolls Fall," *Project & Trade Finance*, June 10, 1999, p. 17.

²¹ "Reaction of the State to High Fees," (*Ohlas statu na vysoke poplatky*), *Hospodarske Noviny*, December 4, 1998, p. 8 (abstracted from the Czech publication by World Reporter™ and appearing in Dow Jones News Retrieval).

Financing Plan for Phase 1

The total estimated cost for Phase 1 was €934 million (see Exhibit 16-7). AWSA's financing plan was based on a model created by Deutsche Bank. The principal inputs to the model were the traffic and revenue forecasts; the construction and operating costs were less critical because they would be fixed contractually. Other key assumptions were that purchasing power parity would hold, Polish inflation would decrease from 6% in 2000 to 2% by 2008, and Polish corporate taxes would decrease from the current rate of 34% to 22% by 2004, in line with official government estimates. The theory underlying the financing plan was to maximize the use of senior debt, subject to maintaining a minimum debt service coverage ratio (DSCR) of 1.5 times under the Base Case revenue forecast (see Exhibits 16-9 and 16-10). As Deutsche Bank managing director Stephen Uhlig noted:

The shape of the revenue curve is the key to the project's debt capacity. We sculpted the debt service to match the cash flows available. However, when the revenue projections changed, the principal repayment schedule had to change, as well. For example, when the downside scenarios became worse, we lost debt capacity. Because the total funding need remained constant, increasingly conservative forecasts created a funding gap that needed to be filled with other funds.

According to the plan, funding would come from three major sources: €242 million from commercial banks in the form of a senior secured project loan; three tranches of zero coupon bonds yielding proceeds of €266 million (with a face amount at €800 million); and €235 in subordinated debt and equity from AWSA shareholders (the second largest amount of equity financing ever raised by a Polish company). The senior debt would have a drawdown period of 5.5 years, followed by a six-month grace period and semiannual principal and interest payments thereafter. Because the loan rate was based on a spread over six-month LIBOR—the spread increased from 180 bp to 235 bp over time—the bankers wanted AWSA to use interest rate swaps to fix the rate. AWSA considered a similar arrangement to address the mismatch between zloty revenues and euro-denominated debt service, but decided against entering into a hedging agreement. Gebicki explained:

We thought about trying to hedge the exchange rate risk, but couldn't do it. First, the instruments don't exist—you really can't go out more than a year without incurring major expense. Second, it's hard to synchronize the hedge given the variability of toll road revenue. And third, there was counterparty risk to cover for the hedging bank and AWSA didn't have any excess cash to post as collateral.

Senior debt principal payments varied depending on operating cash flow and created a final maturity that ranged from 13 years to 15 years. The minimum principal payments were set to be consistent with a 1.15X debt service coverage ratio under a downside scenario where traffic volume was 30% below Deutsche Bank's Base Case scenario. The documents also specified a target repayment schedule with an innovative "cash sweep" mechanism to ensure that extra cash flow was used to pay down senior debt or to create a sinking fund account for repayment of the zero coupon bonds.

The mezzanine debt, the zero coupon bonds, accrued interest based on an effective interest rate of between 7% and 9% p.a.—the exact rate would depend on the specific maturity, currency (U.S. dollars or Euros), and current market conditions at the

EXHIBIT 16-9

POLAND'S A2 MOTORWAY: SUMMARY OF FINANCIAL PROJECTIONS 2000 TO 2025 (IN MILLIONS OF POLISH ZLOTY)

Project Year	Calendar Year	Construction and Other Costs ^a	Toll Revenues ^b	Operating Costs	Taxes	Senior Debt ^c		Bonds ^c (Mezzanine Debt)		Refinancing ^c		Shareholder Payouts on Subordinated Debt and Equity
						Principal	Interest	Principal	Interest	Principal	Interest	
1	2000	PLN (852)	PLN 0	PLN 0	PLN 0	PLN 243	PLN 6	PLN 1,147	PLN 63			PLN 372
2	2001	(746)	0	0	0	226	23		104			232
3	2002	(583)	21	(12)	0	203	40		116			175
4	2003	(433)	36	(18)	0	183	51		128			126
5	2004	(297)	57	(26)	0	159	65		142			83
6	2005	(98)	175	(42)	0	47	(3)		157			41
7	2006		278	(55)	0	(64)	(78)		171			0
8	2007		318	(74)	0	(78)	(73)		187			0
9	2008		358	(65)	0	(115)	(68)		203			0
10	2009		402	(82)	0	(143)	(60)		219			0
11	2010		451	(72)	0	(200)	(49)		237			0
12	2011		506	(186) ^d	0	(240)	(35)		257			0
13	2012		562	(81)	0	(301)	(17)	(1,300)	232	734	(19)	0
14	2013		605	(89)	0	(39)	(1)	(1,210)	148	842	(60)	0
15	2014		652	(199)	0			(1,191)	51	542	(102)	0
16	2015		705	(210)	0					(500)	(106)	0
17	2016		761	(107)	0					(588)	(77)	0
18	2017		821	(97)	0					(688)	(45)	0
19	2018		890	(96)	0					(342)	(9)	(451)
20	2019		964	(92)	0							(880)
21	2020		1,045	(89)	(13)							(952)
22	2021		1,132	(177)	(49)							(908)
23	2022		1,218	(87)	(61)							(1,086)
24	2023		1,282	(88)	(113)							(1,090)
25	2024		1,350	(187)	(144)							(1,018)
26	2025		1,421	(211)	(156)							(1,061)

^a Construction and Other Costs includes design costs, fees, and working capital.

^b Total Revenues includes other revenues.

^c For interest amounts, positive numbers indicate accretion, and negative numbers indicate cash payments; for principal amounts, positive numbers indicate drawdowns, and negative numbers indicate cash repayments.

^d For 2011, operating expenses include PLN104 million of extraordinary expense for resurfacing and maintenance.

Source: Deutsche Bank AG, Information Memorandum, November 1999.

EXHIBIT 16-10
POLAND'S A2 MOTORWAY: SUMMARY OF SENIOR DEBT SENSITIVITIES AND RATES OF RETURN

	Annual Debt Service Cover Ratio (ADSCR) for Senior Debt ^a		Minimum Annual Interest Cover Ratio (AICR) ^b	Net Present Value Loan Life Cover Ratio ^c	Senior Debt Maturity (Years)	Internal Rate of Return (Real % p.a.)
	Minimum	Average				
Base case	1.50×	1.99×	2.57×	2.45×	13.0	9.24%
30% traffic downsided	1.15	1.44	1.43	2.08	15.0	6.60
Macroeconomic sensitivities						
Traffic volume grows at 0%	1.14	1.78	2.39	2.45	14.5	5.24
Toll rates grow at 0%	1.09	1.48	2.32	2.36	14.5	5.83
Traffic ramp-up (slower than expected)	1.15	2.59	1.48	2.43	13.5	9.06
Higher Polish inflation (5% not 2%)	1.50	1.75	2.56	2.45	13.0	9.26
Higher long-term interest rates (by 50 bp)	1.50	1.73	2.39	2.41	13.0	9.26
Higher interest rates throughout concession	1.50	2.29	1.74	2.44	14.0	9.24
Higher interest and inflation rates	1.50	1.62	2.10	2.20	12.0	9.58
Exchange rates (10% zloty depreciation)	1.50	1.67	2.30	2.53	13.5	9.22
Higher corporate income tax (34%, not 22%)	1.50	1.97	2.56	2.45	13.0	9.24
Breakeven analysis						
Traffic downside of 35%	1.00	1.06	1.24	0.56	15.0	6.09
Toll rates grow at negative 0.4%	1.00	1.36	2.29	1.89	14.5	5.15
Traffic growth at negative 0.55%	1.00	1.43	2.34	2.10	14.5	4.22
Cost overrun sensitivities						
Renewal costs plus 100%	1.50	1.61	2.35	2.39	13.0	9.08
First heavy maintenance plus 100%	1.50	1.82	2.57	2.44	13.0	9.08

^a ADSCR equals cash flow available for senior debt service plus transfers from the debt service reserve account divided by total senior debt service (interest and principal).

^b AICR equals cash flow available for senior debt service divided by total interest on senior debt.

^c Net Present Value (NPV) Loan Life Cover Ratio equals the NPV of future cash flows for senior debt divided by the outstanding loan balance at the beginning of the period.

Source: Deutsche Bank AG, Information Memorandum, November 1999.

time of launch. The bonds would mature by 2014, the longest possible maturity available in the zero coupon market according to the investment bankers. In addition, the bonds would be backed by a guarantee from the Polish government for up to €800 million in maximum future value terms. Under the Base Case projections, AWSA would be able to repay only a fraction of total amount outstanding at maturity, leaving the remainder to be refinanced. Because the bonds would be issued under a special legal structure that preserved the government's guarantee for the life of the concession, Gebicki believed AWSA would be able to refinance the bonds, a bet on the future value of the government's guarantee. Although being able to extend the guarantee for the life of the concession was very beneficial, the €800 million ceiling presented a problem. The limit had been tentatively approved by the legislature as part of an authorization for all government guarantees. Yet some people criticized the A2 for absorbing more than its fair share of the total PLN 5.5 billion authorized for guarantees of all kinds. Given the trouble AWSA had securing the €800 million guarantee, Gebicki doubted AWSA could increase the limit.

Finally, shareholder capital came in the form of equity and deeply subordinated debt. Like the mezzanine debt, the subordinated debt did not pay cash interest. In fact, cash interest payments to shareholders were prohibited prior to repayment, defeasance, or cash collateralization of the bonds. This restriction meant that under the Base Case financial projections, the earliest interest payments to shareholders would not occur until 2018, and the shareholder loans would not be paid off until 2026.²² The shareholders' debt had a margin of 9% over the short-term interbank lending rate for euros.

The financing documents required AWSA to have cash reserves in lender-controlled accounts for capital expenditures, heavy maintenance, and debt service. The capital expenditure reserve was prefunded from the construction financing and would cover the cost of upgrading access ramps. AWSA had to accumulate €43 million from operating cash flow in the maintenance reserve account to pay for the first major resurfacing, but no requirements for the two subsequent resurfacings. AWSA also had to build up a debt service equal to six months' accrued interest and the next scheduled principal payment for the senior debt. Finally, it had to maintain a sinking fund account for the partial retirement of the zero coupon bonds beginning in 2012, assuming cash flow was available.

A cash "waterfall" mechanism in the concession agreement spelled out how toll revenues would be allocated. The funds would be disbursed to pay the following obligations in order of priority: (a) current operating expenses, including land lease fees payable to the government under the concession; (b) capital expenditure and maintenance reserve accounts; (c) current interest and principal payments on senior debt; (d) senior debt service reserve account; and (e) all remaining cash to the zero coupon bond sinking fund. Supplementing the waterfall was a detailed intercreditor agreement among the lenders documenting their consent to the relative preferences and rankings spelled out by the financial documents. The financing plan received government approval and was incorporated in the final concession agreement, which was signed in October 1999.

The legal framework for the financing plan and loan documents had been developed by Baker & McKenzie and was designed to meet the prevailing expectations of the prospective Western European project finance lenders and eurobond purchasers. Because this was the first major project financing in Poland, there were few precedents to guide the lawyers. They decided the senior debt contracts would be governed by

²² Deutsche Bank AG, *A2 Motorway—POLAND, Information Memorandum*, November 1999, pp. 51, 75, and 76.

U.K. common law. However, because the lenders' collateral and AWSA's principal assets were in Poland, enforcement of the lenders' rights would have to run through Polish courts and would be subject to Poland's civil law system. Joining disparate legal systems created discrepancies that had to be resolved. For example, Polish law did not allow interest on interest in default situations. Despite some uncertainties in the Polish legal system and the presence of potential conflicts between the systems, Baker & McKenzie would be expected to provide the lenders with satisfactory legal opinions as to the enforceability of their claims.

CONCLUSION

As Gebicki finished his review of the construction, operating, and financial plans for the concession, he found it difficult to imagine why the bankers would have concerns about the project. The fact that the banks had engaged their own transportation consultant forced Gebicki to consider the possibility that they had adopted an even more pessimistic "downside" financial case. New, more pessimistic scenarios would not only represent a deviation from the scenarios agreed to by the bankers in the original mandate letter, but they would also create a funding gap that would explain the bankers' request for additional equity. Gebicki was not sure how AWSA's shareholders would respond to such a request. Facing the July 29 deadline for financial close, the process of negotiating further commitments from 18 shareholders seemed an almost insurmountable challenge. Because the zero coupon bonds offered almost the same comfort to the senior lenders as equity, Gebicki briefly considered the possibility of issuing additional bonds, but he quickly abandoned the idea owing to the strict limit on the size of the government's guarantee.

Gebicki decided that his best option was to convince the bankers that their analysis was too pessimistic. As evidence, he could point to the early results from the A4 Toll Motorway. Although the A4 was launched after the A2, it had opened for traffic in April 2000 and was reportedly capturing some 80% of available traffic, well above Wilbur Smith's assumed 50% capture rate for the A2. Because the A4 was only 60 km long and connected two large cities, the bankers might reject the comparison. In any case, Gebicki had to marshal the strongest possible defense of AWSA's financial projections. If he failed to convince the bankers, then it would be up to the lead shareholders to make additional financial commitments or the financing would not close on time. Yet, only NCC, PSE, Kulczyk, and Strabag had expressed any willingness to provide additional funds.

Although this option seemed like a long shot, another potentially attractive option had recently emerged. A few days earlier, Gebicki had received a letter from the European Investment Bank (EIB) that expressed renewed interest in financing part of the A2 Motorway. Whereas EIB had previously expressed only limited interest in financing the A2, now it was entertaining the idea of a term loan in an amount roughly equal to the bond proceeds in the current financial plan. One problem with using EIB funds for Phase 1 was that Base Case cash flows could not service both the senior debt and an EIB loan. As a result, the EIB loan would have to accrue interest, yet Gebicki knew that the EIB traditionally allowed interest to accrue only during construction not during operations. Moreover, the EIB required *pari passu* treatment with other senior lenders. The proposed financing plan with its sequential repayment of debt obligations might, therefore, be another stumbling block. Finally, if the bankers insisted on a more pessimistic downside scenario, there would still be a large financing gap. With less than six weeks to go before the financing had to be closed, Gebicki doubted whether he

could pull together a new financing plan before the deadline. Given the fact that there had been four different finance ministers since AWSA won the concession in 1997, the risk always existed that delays could result in a change of heart by any number of government officials.

Following his meeting with the bankers, Gebicki had to prepare a final recommendation on financing for AWSA's supervisory board. Depending on how his meeting with the bankers turned out, getting this approval might be his biggest challenge yet.